Brompton Kit Installation Guide

HIDDEN POWER

Prior to installation

■ HiddenPower kit is released as semi-assembled. If the kit is not installed in accordance with the guideline, it may cause malfunctioning, or performance issues. In order to prevent product failure, contact HiddenPower distributors for precise installation advices. Please note the kit is originally developed for road-tire bikes. Prior to installation, check and maintain the designated tire pressure.

■ Tools for assembly
- Six-angle wrench (1.5mm/2.5mm/3mm), Nipper, Scissors, (File and hacksaw if necessary)

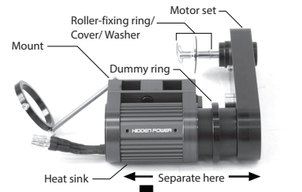
■ The principle of HiddenPower kit
HiddenPower kit is operated by driving part, which is fixed to seat tube, together with the friction roller that rolls on the road surface of tire. Thus the contacting point of roller and tire is crucial in order to deliver the maximal motor power to the tire for the best performance.

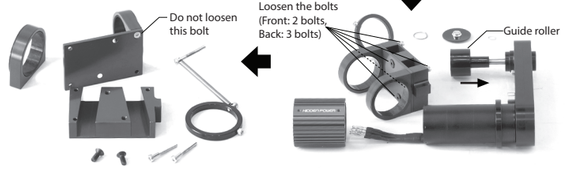
※ It is recommended to understand the standard kit operation principle through HiddenPower user manual before starting installation.
Friction roller slightly touches the road surface of the tire when the kit motor is off.
As soon as the motor runs, roller spins and gets lifted upward on the tire when roller starts to spin faster than the tire. This process of shifting of roller delivers the best torque for driving.

1 Preparation for installation

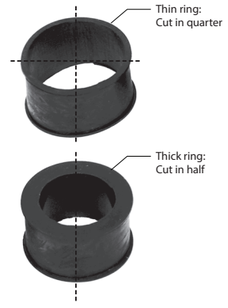
1-1. Separation of Motor & Mount

The motor and the mount are released as semi-installed and placed on the pre-set position.
For installation, separate the mount from the motor set and detach roller-fixing ring, the cover, washer from the motor set. Then attach Guide roller (See bottom-right picture). The bolts from the mount should be loosened as shown in the picture below.
*One bolt should stay fastened

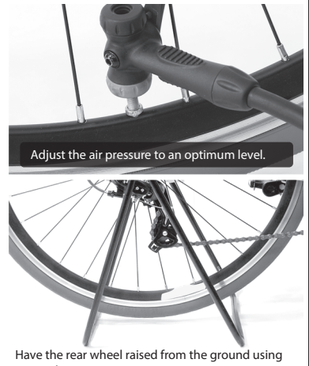




1-2. Rubber ring cutting



1-3. Tire Air Pressure Adjustment

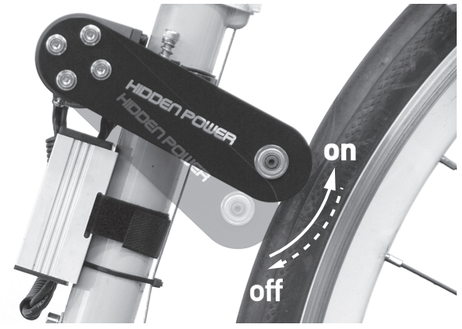


Have the rear wheel raised from the ground using rear rack.

2 Understanding the principle (in the case of Standard kit)

This chapter will make installation process a lot easier. Understand the mutual relation between tire and roller when the motor is on/off. And find the optimal point of motor mount and install accordingly.

Power ON



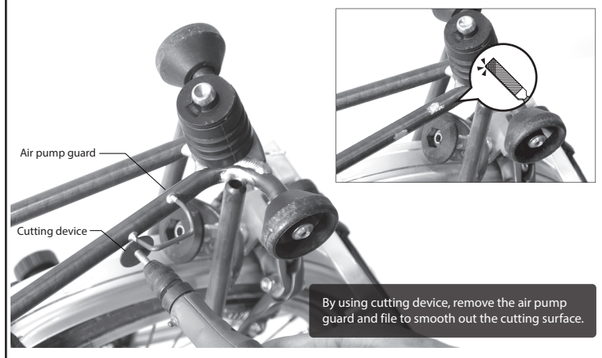
The roller spins on the road surface of tire and gets lifted upward automatically, presses the tire strongly and delivers power.

Power OFF

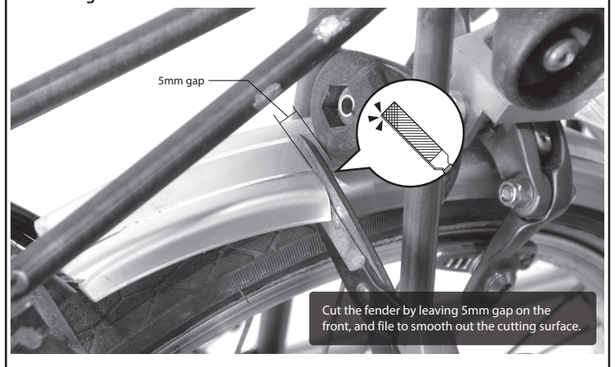
The tire automatically pushes the roller away to the original position when the motor is off.

3 Cutting parts

Removing the air pump guard

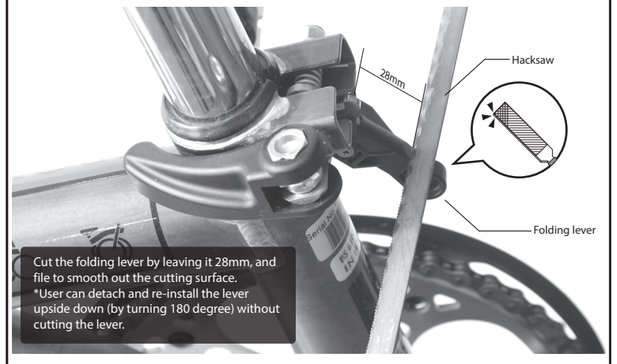

Air pump guard
Cutting device
By using cutting device, remove the air pump guard and file to smooth out the cutting surface.

Cutting the fender

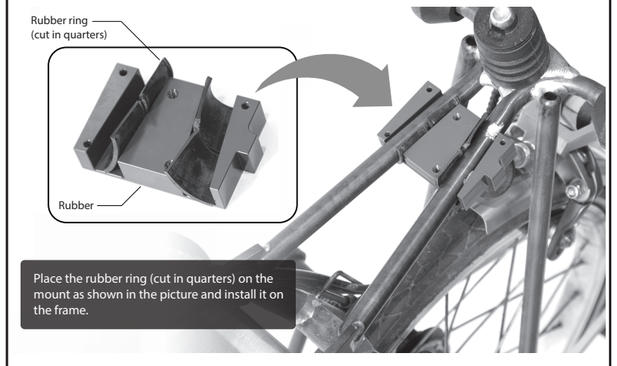


3 Cutting parts – Folding lever

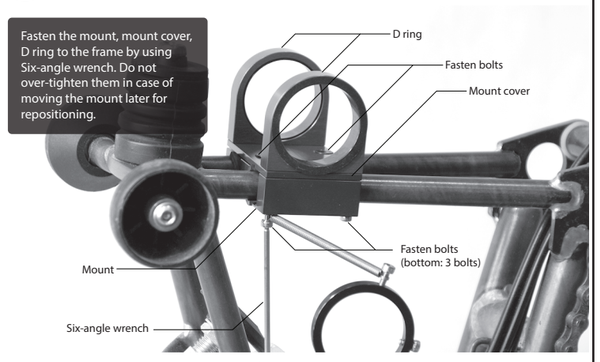
Cutting the folding lever

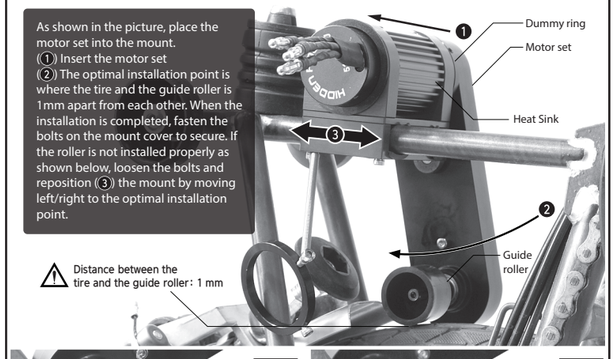

28mm
Hacksaw
Folding lever
Cut the folding lever by leaving it 28mm, and file to smooth out the cutting surface.
*User can detach and re-install the lever upside down (by turning 180 degree) without cutting the lever.

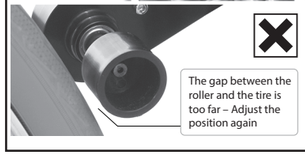
4 Mount Positioning

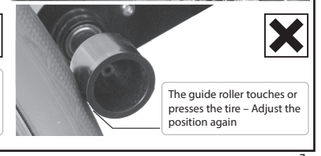

Rubber ring (cut in quarters)
Rubber
Place the rubber ring (cut in quarters) on the mount as shown in the picture and install it on the frame.

4 Mount Positioning


Fasten the mount, mount cover, D ring to the frame by using Six-angle wrench. Do not over-tighten them in case of moving the mount later for repositioning.
D ring
Fasten bolts
Mount cover
Fasten bolts (bottom: 3 bolts)
Mount
Six-angle wrench

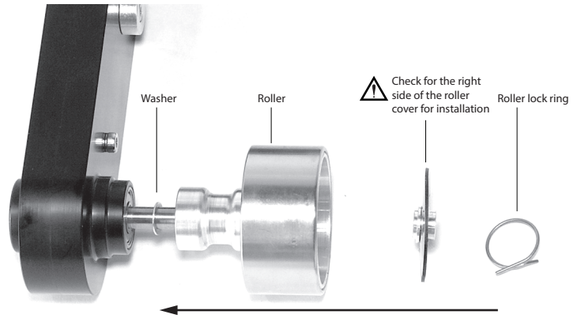

As shown in the picture, place the motor set into the mount.
(1) Insert the motor set
(2) The optimal installation point is where the tire and the guide roller is 1mm apart from each other. When the installation is completed, fasten the bolts on the mount cover to secure. If the roller is not installed properly as shown below, loosen the bolts and reposition (3) the mount by moving left/right to the optimal installation point.
Dummy ring
Motor set
Heat Sink
Guide roller
Distance between the tire and the guide roller: 1 mm





5 Driving Roller Assembly

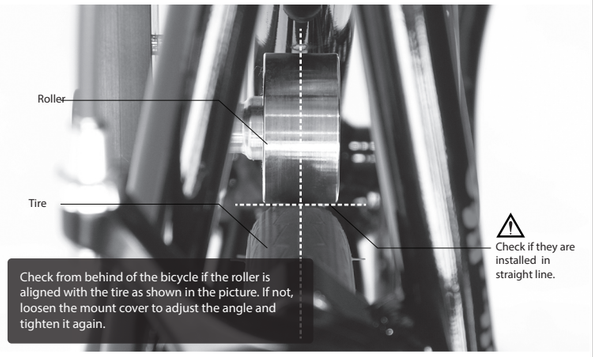
Assemble the roller in order as shown in the picture.



Assemble the driving roller cover and lock ring.

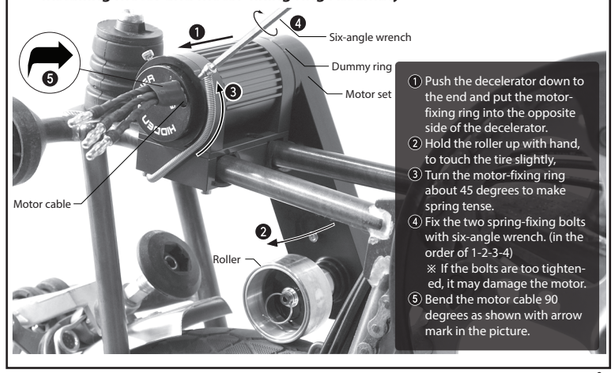
6 Motor Installation

Roller form-up check



Check from behind of the bicycle if the roller is aligned with the tire as shown in the picture. If not, loosen the mount cover to adjust the angle and tighten it again.

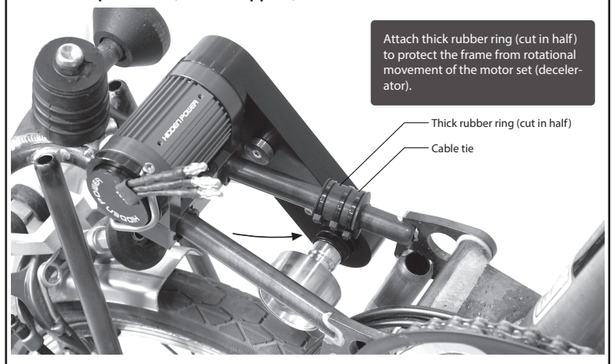
Installing motor and motor-fixing ring Assembly



① Push the decelerator down to the end and put the motor-fixing ring into the opposite side of the decelerator.
② Hold the roller up with hand, to touch the tire slightly,
③ Turn the motor-fixing ring about 45 degrees to make spring tense.
④ Fix the two spring-fixing bolts with six-angle wrench. (in the order of 1-2-3-4)
※ If the bolts are too tightened, it may damage the motor.
⑤ Bend the motor cable 90 degrees as shown with arrow mark in the picture.

7 Frame-protector (rubber support) installation

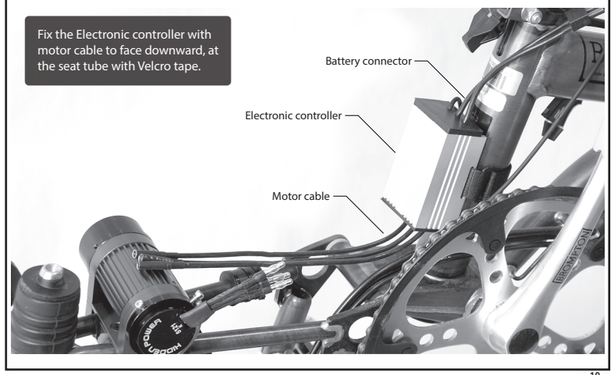
Frame-protector (rubber support) installation



Attach thick rubber ring (cut in half) to protect the frame from rotational movement of the motor set (decelerator).

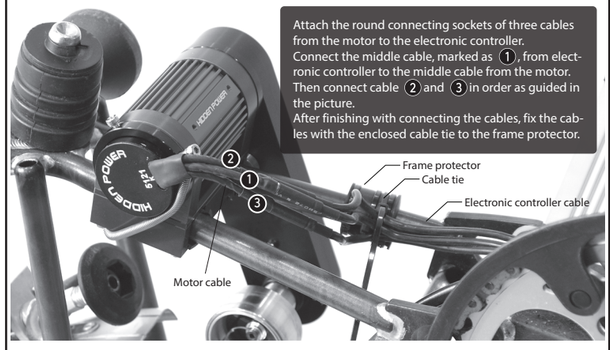
8 Electronic Controller Installation

Fix the Electronic controller with motor cable to face downward, at the seat tube with Velcro tape.



8 Electronic Controller Installation – Connecting cables

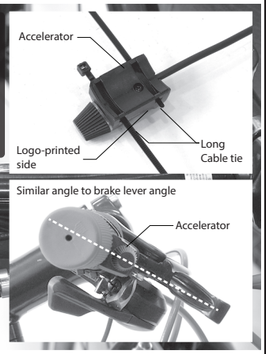
Connecting cables



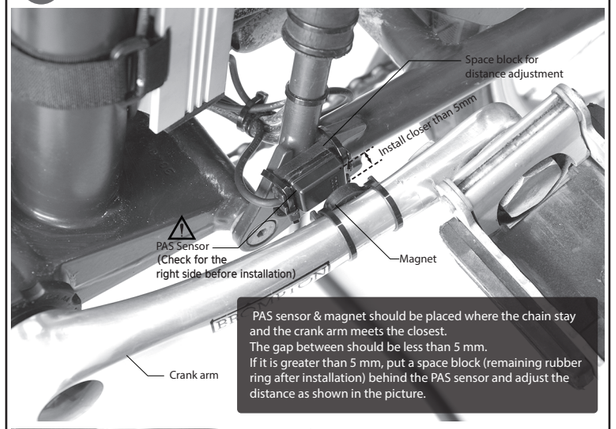
Attach the round connecting sockets of three cables from the motor to the electronic controller.
Connect the middle cable, marked as ①, from electronic controller to the middle cable from the motor.
Then connect cable ② and ③ in order as guided in the picture.
After finishing with connecting the cables, fix the cables with the enclosed cable tie to the frame protector.

Accelerator Installation

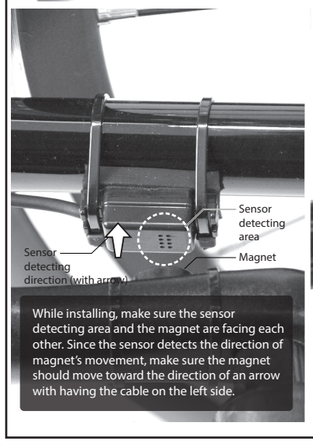
Put the cable tie (long one) into the opposite hole of the logo side and install it onto the right handle grip. Tighten the cable tie a little loosely and adjust to find the proper point for your handle controlling. The optimal point of installation is where user could control the accelerator knob with his ring finger, keeping the same angle to the brake lever. (See picture on bottom right corner). Fix the accelerator cable with a cable tie along the brake cable.



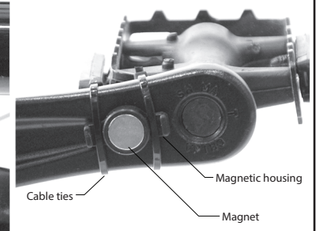
9 PAS sensor Installation Guide (PAS only)


Space block for distance adjustment
Install closer than 5mm
PAS Sensor (Check for the right side before installation)
Magnet
Crank arm

PAS sensor & magnet should be placed where the chain stay and the crank arm meets the closest.
The gap between should be less than 5 mm.
If it is greater than 5 mm, put a space block (remaining rubber ring after installation) behind the PAS sensor and adjust the distance as shown in the picture.

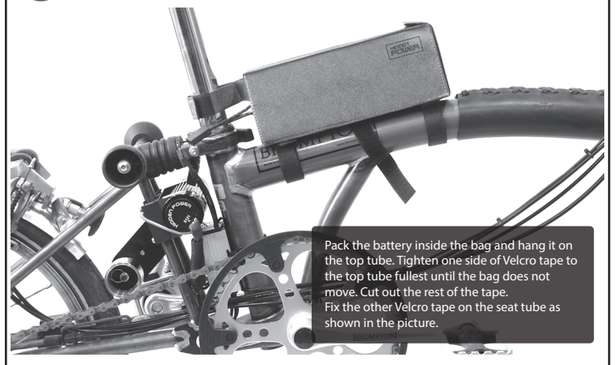


While installing, make sure the sensor detecting area and the magnet are facing each other. Since the sensor detects the direction of magnet's movement, make sure the magnet should move toward the direction of an arrow with having the cable on the left side.



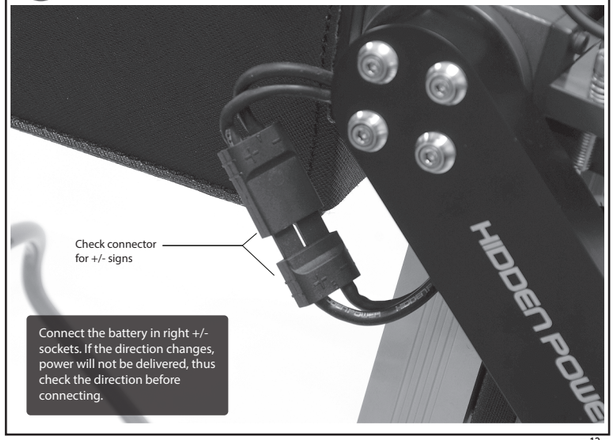
Installation (image from inner side of the crank arm): Silver magnet should be exposed

10 Battery Installation



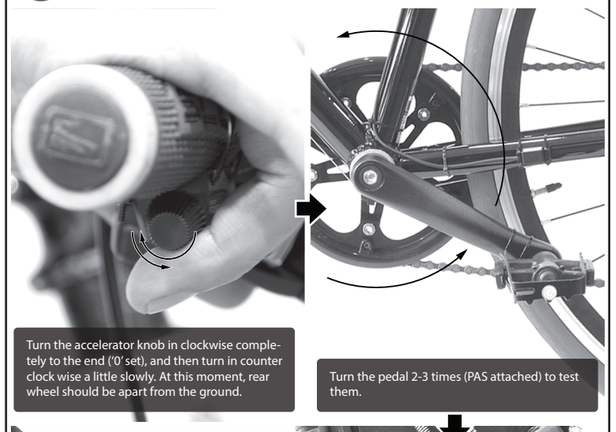
Pack the battery inside the bag and hang it on the top tube. Tighten one side of Velcro tape to the top tube fullest until the bag does not move. Cut out the rest of the tape.
Fix the other Velcro tape on the seat tube as shown in the picture.

11 Test – Battery Socket Connection



Connect the battery in right +/- sockets. If the direction changes, power will not be delivered, thus check the direction before connecting.

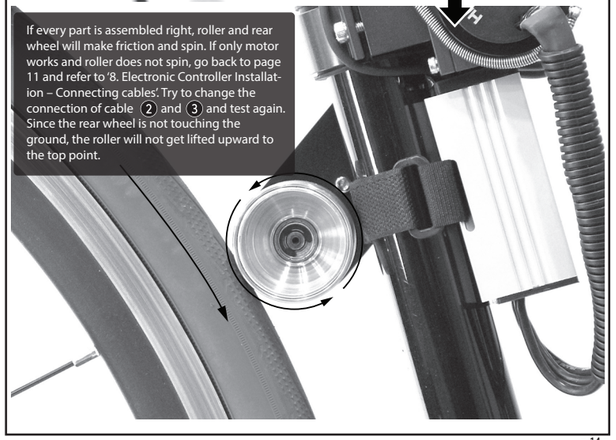
12 Test (PAS type)



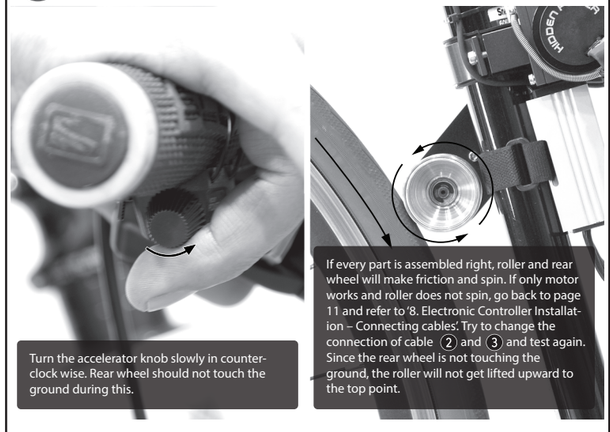
Turn the accelerator knob in clockwise completely to the end ('0' set), and then turn in counter clock wise a little slowly. At this moment, rear wheel should be apart from the ground.

Turn the pedal 2-3 times (PAS attached) to test them.

If every part is assembled right, roller and rear wheel will make friction and spin. If only motor works and roller does not spin, go back to page 11 and refer to '8. Electronic Controller Installation – Connecting cables'. Try to change the connection of cable ② and ③ and test again. Since the rear wheel is not touching the ground, the roller will not get lifted upward to the top point.



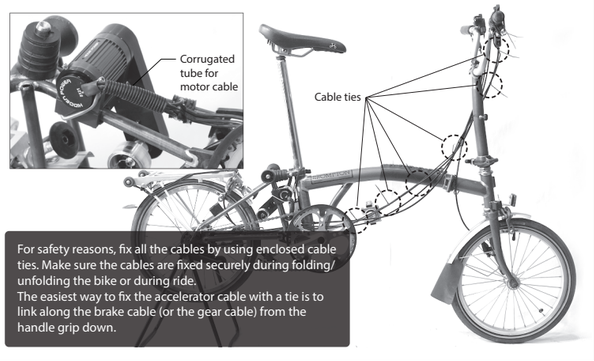
13 Test (Throttle type)



Turn the accelerator knob slowly in counter-clock wise. Rear wheel should not touch the ground during this.

If every part is assembled right, roller and rear wheel will make friction and spin. If only motor works and roller does not spin, go back to page 11 and refer to '8. Electronic Controller Installation – Connecting cables'. Try to change the connection of cable ② and ③ and test again. Since the rear wheel is not touching the ground, the roller will not get lifted upward to the top point.

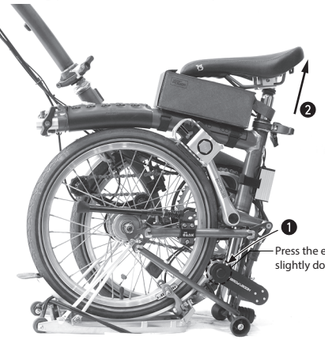
14 Cables



For safety reasons, fix all the cables by using enclosed cable ties. Make sure the cables are fixed securely during folding/unfolding the bike or during ride.
The easiest way to fix the accelerator cable with a tie is to link along the brake cable (or the gear cable) from the handle grip down.

15 Cautions

■ This chapter will make installation process a lot easier. Understand the mutual relation between tire and roller when the motor is on/off. And find the optimal point of motor mount and install accordingly. The friction roller directly drives the road surface of the tire



Tip to separate the battery socket:
User may find it difficult to separate the battery socket in the beginning. Hold the grips with two hands and pull them apart by utilizing your hands as leverage shown in the picture below.